

**AMENDMENTS TO THE CLAIMS:**

Kindly amend claim 1, as shown below.

This listing of claims will replace all prior versions and listings of claims in the application:

**Claim 1 (currently amended):** An on-wafer monitoring system capable of measuring an operation of a plasma treatment apparatus on a wafer, said system comprising:

one or a plurality of sensor sections, a power source unit, and an I/O unit that inputs/outputs signals from/to outside, which are provided on a silicon substrate,

wherein each of said sensor sections ~~[[have]]~~has a pattern portion ~~portions~~ which is a plasma treatment target, and under said pattern portion, a plurality of electrodes for separating ions and electrons of plasma by energy, and an uppermost electrode of said electrodes ~~has include electrodes having the same potential as that of said silicon substrate directly under said pattern portions~~, and

wherein said power source unit takes out power from plasma potential or takes out power from photoelectromotive force of a PLZT device.

**Claim 2 (previously presented):** The on-wafer monitoring system according to Claim 1,

wherein a plurality of electrodes of said sensor sections are Al electrodes, and space between each of the Al electrodes is insulated by  $\gamma$ -Al<sub>2</sub>O<sub>3</sub>.

**Claim 3 (original):** The on-wafer monitoring system according to Claim 2,

wherein the side surface of said Al electrodes is covered with a thin oxide film.

**Claim 4 (canceled)**

**Claim 5 (previously presented):** The on-wafer monitoring system according to Claim 3,

wherein said I/O unit inputs/outputs signals from/to outside by light.

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE,  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

**Claim 6 (previously presented):** The on-wafer monitoring system according to Claim 1,  
wherein said system includes an ion energy analyzer, which has a collector electrode at  
a sensor section bottom and measures ion current in the collector electrode to obtain ion energy  
distribution, as said sensor.

**Claim 7 (previously presented):** The on-wafer monitoring system according to Claim 1,  
wherein said system includes a photon detector, which detects light made incident into a  
pattern by photoinduced current generated in an insulating film, as said sensor.

**Claim 8 (previously presented):** The on-wafer monitoring system according to Claim 1,  
wherein said photon detector forms a metal thin film on said insulating film, and detects  
light having energy equivalent to or more than an energy difference between the work function  
of the metal and the conduction band bottom of said insulating film out of light transmitted  
from the metal thin film.

**Claim 9 (previously presented):** The on-wafer monitoring system according to Claim 1,  
wherein said system includes a photon detector that detects light by a photo diode, as  
said sensor.

**Claim 10 (previously presented):** The on-wafer monitoring system according to Claim 1,  
wherein said system includes an ion radical analyzer, which identifies radicals and ions  
by detecting light emission by the collision between electrons from an electron gun and radicals  
or ions, as said sensor.

**Claim 11 (original):** The on-wafer monitoring system according to Claim 10,  
wherein said ion radical analyzer has a spectroscopy for detecting light emission.

**Claim 12 (previously presented):** The on-wafer monitoring system according to Claim 1,

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE,  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

wherein said system includes a probe, which detects at least one of electron current, electron energy distribution, ion current, electron temperature, electron density, and charge storage amount, as said sensor.

**HAYES SOLOWAY P.C.**  
3450 E. SUNRISE DRIVE,  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567